







### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference N.77422 MN		of Transmittal of International Search Report 220) as well as, where applicable, item 5 below.						
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)						
PCT/EP 99/05088 16/07/1999 17/07/1998								
Applicant								
VIRTUAL REAL-ESTATE et al.								
This International Search Report has been according to Article 18. A copy is being tra	n prepared by this International Searching Aut ansmitted to the International Bureau.	hority and is transmitted to the applicant						
This International Search Report consists  X It is also accompanied by	of a total of sheets. a copy of each prior art document cited in this	s report.						
Basis of the report								
	international search was carried out on the ba ess otherwise indicated under this item.	sis of the international application in the						
the international search w Authority (Rule 23.1(b)).	ras carried out on the basis of a translation of	the international application furnished to this						
was carried out on the basis of the	e sequence listing :	nternational application, the international search						
	onal application in written form. •rnational application in computer readable for	m						
	o this Authority in written form.							
	o this Authority in computer readble form.							
the statement that the sul	osequently furnished written sequence listing of the s	does not go beyond the disclosure in the						
		is identical to the written sequence listing has been						
2. Certain claims were fou	nd unsearchable (See Box I).	`						
3. Unity of invention is lac	king (see Box II).							
4. With regard to the title,								
the text is approved as su	ibmitted by the applicant.							
I ————————————————————————————————————	shed by this Authority to read as follows:							
PROGRAM LOGIC FOR DIS	PLAYING TEXT PASSAGES ON A	SCREEN						
5. With regard to the abstract,								
the text is approved as su	ibmitted by the applicant.							
the text has been establis		rity as it appears in Box III. The applicant may, port, submit comments to this Authority.						
6. The figure of the drawings to be pub	lished with the abstract is Figure No.	1						
X as suggested by the appi	icant.	None of the figures.						
because the applicant fail	ed to suggest a figure.							
because this figure better	because this figure better characterizes the invention.							

# INTERNATIONAL SEARCH REPORT

Interr nai Application No PCT/EP 99/05088

A. CLASSII IPC 7	FICATION OF SUBJECT MATTER G06F17/30		
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According to	o International Patent Classification (IPC) or to both national classific	ation and IPC	
	SEARCHED		
	cumentation searched (classification system followed by classificat	ion symbols)	
IPC 7	G06F		
<del>_</del>			
Documentat	tion searched other than minimum documentation to the extent that	such documents are included in the fields se	arched
Electronic d	ata base consulted during the international search (name of data ba	ase and, where practical, search terms used	)
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C DOCULA	ENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the re	levant passages	Relevant to daim No.
- Culogoly			
Α	HEMMJE M ET AL: "LYBER WORLD -	A	1-5
	VISUALIZATION USER INTERFACE SUP	PORTING '	
	FULLTEXT RETRIEVAL" SIGIR '94, DUBLIN, JULY 3 - 6, 1	004	
	no. CONF. 17, 3 July 1994 (1994–	07-03),	
	pages 249-259, XP000475325	·	
	CROFT W B; VAN RIJSBERGEN C J (ED page 253, line 6 -page 255, para	ITORS)	
Α	page 253, Time 6 -page 255, para page 251, line 57 -page 252, lin	e 9	6-8
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· · · ·			<u> </u>
X Furt	ther documents are listed in the continuation of box C.	Patent family members are listed	in annex.
* Special ca	ategories of cited documents:	"T" later document published after the inte	emational filing date
"A" docum	ent defining the general state of the art which is not dered to be of particular relevance	or priority date and not in conflict with cited to understand the principle or th	eory underlying the
"E" earlier	document but published on or after the international	invention "X" document of particular relevance; the	
filing of the document	ent which may throw doubts on priority claim(s) or	cannot be considered novel or canno involve an inventive step when the do	ocument is taken alone
citatio	is cited to establish the publication date of another on or other special reason (as specified)	"Y" document of particular relevance; the cannot be considered to involve an ir document is combined with one or m	ventive step when the
other	nent referring to an oral disclosure, use, exhibition or means	ments, such combination being obvious in the art.	ous to a person skilled
	nent published prior to the International filing date but than the priority date claimed	"&" document member of the same patent	family
Date of the	actual completion of the international search	Date of mailing of the international se	arch report
2	22 October 1999	02/11/1999	
Name and	mailing address of the ISA	Authorized officer	
	European Patent Office, P.B. 5818 Patentiaan 2 Nt 2280 HV Rijswijk Tal (-31-70) 340-2040 Tv. 31 651 cop. pl		
1	Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Fournier, C	•

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Intern	nal	Application	No
PCT/E	Ρ	99/0508	38

C (Continu	Allen DOCUMENTO COMPANION DE LA COMPANION DE L	PCT/EP 99	9/05088
Category *	ation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	•	<u>.</u>
	on the relevant passages	•	Relevant to claim No.
X	GINSBERG A: "A UNIFIED APPROACH TO AUTOMATIC INDEXING AND INFORMATION RETRIEVAL" IEEE EXPERT, vol. 8, no. 5, 1 October 1993 (1993-10-01), pages 46-56, XP000413472 ISSN: 0885-9000		6
٩	page 47, right-hand column, line 3 -page 48, left-hand column, line 14 		7,8
A	LAMPING J ET AL: "A FOCUS+CONTEXT TECHNIQUE BASED ON HYPERBOLIC GEOMETRY FOR VISUALIZING LARGE HIERARCHIES" HUMAN FACTORS IN COMPUTING SYSTEMS, CHI '95 CONFERENCE PROCEEDINGS. DENVER, MAY 7 - 11, 1995,7 May 1995 (1995-05-07), pages 401-408, XP000538470 KATZ I R ET AL (ED ) ISBN: 0-201-84705-1 abstract; figures		6-8
	FOWLER R H ET AL: "INTEGRATING QUERY, THESAURUS, AND DOCUMENTS THROUGH A COMMON VISUAL REPRESENTATION" PROCEEDINGS OF THE ANNUAL INTERNATIONAL ACM/SIGIR CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL, CHICAGO, OCT. 13 - 16, 1991, no. CONF. 14, 13 October 1991 (1991-10-13), pages 142-151, XP000239166 BOOKSTEIN A; CHIARAMELLA Y; SALTON G; RAGHAVAN V the whole document		1-8
			. *
		·	

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

То:	
Nicholls, Michael Jo J.A. KEMP & CO. 14 South Square Gray's Inn	J. A. KEMP & Co
London WC1R 5LX GRANDE BRETAG	NE .
!	Action by

# PCT

WRITTEN OPINION

(PCT Rule 66)

	Action by		Date of mailing (day/month/year)	30.03.2000
Applicant's or agent's file	reference		REPLY DUE	within 3 month(s) from the above date of mailing
International application I	· · · · · · · · · · · · · · · · · · ·	ternational filing date ( 6/07/1999	day/month/year)	Priority date (day/month/year) 17/07/1998
International Patent Clas	sification (IPC) or both na	ational classification ar	nd IPC	
G06F17/30 Applicant				
VIRTUAL REAL-ES	TATE et al.			

- 1. This written opinion is the first drawn up by this International Preliminary Examining Authority.
- 2. This opinion contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II Priority
  - III D Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

  - VII 

    Certain defects in the international application
  - VIII 

    Certain observations on the international application
- 3. The applicant is hereby invited to reply to this opinion.
  - When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).
  - How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3.

For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.

For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.

For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 17/11/2000.

Name and mailing address of the international preliminary examining authority:

European Patent Office D-80298 Munich

Tel. +49 89 2399 - 0 Tx: 523656 epmu d

Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Corcoran, P

Formalities officer (incl. extension of time limits)

Taylor, K

Telephone No. +49 89 2399 2687



International application No. PCT/EP99/05088

I. Basis	of the	opini	ion
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٠.	Das	is of the obunon	
1.	This	opinion has been esponse to an invita	drawn on the basis of (substitute sheets which have been furnished to the receiving Office ation under Article 14 are referred to in this opinion as "originally filed".):
	Des	cription, pages:	
	1-8		as originally filed
	Clai	ms, No.:	
	1-8		as originally filed
	Dra	wings, sheets:	
	1/4-	4/4	as originally filed
2	The	amendments have	e resulted in the cancellation of:
۷.	1116		
		the description,	pages:
		the claims,	Nos.:
		the drawings,	sheets:
3.	Thi: con	s opinion has been sidered to go beyo	established as if (some of) the amendments had not been made, since they have been nd the disclosure as filed (Rule 70.2(c)):
4.	Add	litional observation	s, if necessary:
	see	separate sheet	
		ck of unity of inve	
1.	. In r	esponse to the invi	itation (Form PCT/IPEA/405) to restrict or pay additional fees, the applicant has:
		restricted the claim	ms.
		paid additional fe	es.
		paid additional fe	es under protest.
		neither restricted	nor paid additional fees.

2. 

This Authority found that the requirement of unity of invention is not complied with for the following reasons

and chose, according to Rule 68.1. not to invite the applicant to restrict or pay additional fees:

#### see separate sheet

Consequently, the following parts of the int examination in establishing this opinion:	ernational application w	ere the subject of i	ntemational p	reliminary
<b>=</b> " .		*		
🛛 all parts.	•		•	

☐ the parts relating to claims Nos. .

- V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- 1. Statement

Novelty (N)

Claims 6,7

Inventive step (IS)

Claims 8

Industrial applicability (IA)

Claims

2. Citations and explanations

see separate sheet

# VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

# IV. Lack of Unity of Invention

# (1) Unity of Invention - Rule 13 PCT

An objection concerning lack of unity of invention is raised with respect to the present claim set because it is considered that there are two groups of claims relating to separate inventions, *viz*:

- Programme logic for the <u>display</u> of text passages; Claims 1-5;
- 2. Programme logic for the <u>retrieval</u> of text passages; Claims 6-8;

The subject matter of the above groups of claims is effectively related by the corresponding functions of "retrieving" and "displaying" text passages. However, said corresponding functions of "retrieving" and "displaying" cannot *per se* be considered novel and inventive features in respect of an information retrieval system. Hence, said features cannot be regarded as "special technical features" in the sense of Rule 13.2 PCT.

In view of the foregoing, the requisite unity of invention (Rule 13.1 PCT) is not considered to exist inasmuch as a technical relationship involving one or more of the same or corresponding <u>special technical features</u> in the sense of Rule 13.2 PCT is not found to exist between the subject-matter of the above groups of claims.

#### Reasoned Statement under Rule 66.2(a)(ii) ٧.

### (1) Cited Prior Art

Reference is made to the following documents:

- D1: FOWLER R H ET AL: 'INTEGRATING QUERY, THESAURUS, AND DOCUMENTS THROUGH A COMMON VISUAL REPRESENTATION' PROCEEDINGS OF THE ANNUAL INTERNATIONAL CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL, CHICAGO, OCT. 13 - 16, 1991, no. CONF. 14, 13 October 1991 (1991-10-13), pages 142-151, XP000239166 BOOKSTEIN A;CHIARAMELLA Y; SALTON G; RAGHAVAN V;
- D2: HEMMJE M ET AL: 'LYBER WORLD A VISUALIZATION USER INTERFACE SUPPORTING FULLTEXT RETRIEVAL' SIGIR '94, DUBLIN, JULY 3 - 6, 1994, no. CONF. 17, 3 July 1994 (1994-07-03), pages 249-259, XP000475325 CROFT W B; VAN RIJSBERGEN C J (EDITORS);
- D3: LAMPING J ET AL: 'A FOCUS+CONTEXT TECHNIQUE BASED ON HYPERBOLIC GEOMETRY FOR VISUALIZING LARGE HIERARCHIES' HUMAN FACTORS IN COMPUTING SYSTEMS, CHI '95 CONFERENCE PROCEEDINGS. DENVER, MAY 7 - 11, 1995,7 May 1995 (1995-05-07), pages 401-408, XP000538470 KATZ I R ET AL (ED ) ISBN: 0-201-84705-1;
- D4: G.G. ROBERTSON ET AL.: "Cone Trees: Animated 3D Visualizations of Hierarchical Information", HUMAN FACTORS IN COMPUTING SYSTEMS CONFERENCE PROCEEDINGS, READING, USA, 27. April 1991, pages 189 to 194, XP 002002888;

The document D4 was not cited in the International Search Report. A copy of the document is annexed to the communication. The above numbering will be adhered to in the rest of the procedure.

## (2) Claims 6-8

### 2.1) Claim 6

The subject matter of the independent claim 6, insofar as it can be understood, is considered to lack novelty in the sense of Article 33 (2) PCT. The applicant is referred to VIII. below for observations concerning the clarity of the claim.

Claim 6 is directed towards "programme logic for the purpose of retrieving of text

passages relevant to the solution of a programme". According to said claim "a number of criteria relevant to the solution of the task and subcriteria attributed to them of several consecutive categories are shown on the screen" and "based on a combination of search criteria a text search in at least one data memory is carried out, the result of which can also be displayed on the screen".

Said claim, insofar as it has been understood, is directed towards a structured visual representation of a query to be used as a basis for information retrieval substantially equivalent to the "query graph" or "query network" disclosed in D1: 2. A System Integrating Visual Representations, p.143 right-hand col. second paragraph; 6. Using the System Components, p.148-50, in particular the first three paragraphs; Figs. 1 and 2, in particular the "REQUEST MAP" window.

In view of the foregoing, all the features of the claim can be considered as disclosed in D1 and hence the subject matter of claim 6 lacks novelty in the sense of Article 33 (2) PCT.

#### 2.2) Claims 7-8

Dependent claims 7-8 do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and inventive step.

As to claim 6, the "query graph" of D1 discloses subcriteria of a second category arranged around subcriteria of a first category in a substantially radial order (cf. Figs. 1-3). In any case the visual representation of hierarchical information sets in a radial order is known per se and its application in the given context would not require the use of inventive skill, cf. D3: Abstract and Figs. 1,3,4.

As to claim 7, the extension of the visual representation to three-dimensions is not considered to involve an inventive step because the three-dimensional visual representation of hierarchical information sets is already known per se and its application in the given context would not require the use of inventive skill, (cf. D4 for example).

### (3) Claims 1-5

#### 3.1) Claim 1

In the field of information retrieval (IR) systems it is known to use circular display regions for the visualization of informational relationships. D2 is considered to be the closest prior art with respect to the subject matter of claim 1. Said document discloses the design of IR tools for the visualization of information "content spaces" (D2: 2. What has to be Visualized? - Modelling a Spatial Information Navigation, paragraphs 1 and 2, p.250) and more particularly discloses the display of text passages ("documents") arranged on a screen in relation to a combination of search criteria ("terms") with the radial distances of the individual text passages ("documents") from the search criteria showing their relevance to the combination of the search criteria ("terms"), cf. Figs.6-8 and 13-16.

The teaching of D2 appears to be restricted to an arrangement in which the combination of search criteria ("term nodes") are placed around the circumference of the display area ("relevance sphere") with the text passages ("documents") being arranged inside the display area, (cf. p.253 l.20-31) whereas in the display arrangement described on p.3 l.3-9, p.5 l.10-15 and illustrated in Figs. 1 and 3 of the present application, the combination of search criteria are displayed in the central or core region of the circular display area and that the text passages are displayed in the outer sectors of the circular display area, thus being concentrically arranged around the combination of search criteria. Having regard to this difference, the display arrangement of the present application does not appear to be either disclosed suggested by the available prior art. Subject to appropriate clarification (cf. VIII.1 below), the subject matter of claim 1 could therefore be considered to meet the requirements of Article 33 PCT in respect of novelty and inventive step.

# 3.2) Dependent Claims 2-5

To the extent that claim 1 may be considered to meet the requirements of the PCT with respect to novelty and inventive step as indicated in **3.1** above, claims 2-5 dependent thereon may also be considered to meet these requirements. The applicant is referred to VIII. below for observations concerning the clarity of said claims.

# VII. Certain Defects in the International Application

- (1) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the documents D1-D4 are not identified in the description with appropriate reference to the relevant background art disclosed therein.
- (2) The features of the claims have not been provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- (3) The applicant is requested to file amendments by way of replacement pages in the manner stipulated by Rule 66.8(a) PCT. In particular, fair copies of the amendments should be filed preferably in triplicate. Moreover, the applicant's attention is drawn to the fact that, as a consequence of Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments, however minor, under the PCT procedure.
- (4) In accordance with Article 34(2)(b) PCT, any information the applicant may wish to submit concerning the subject-matter of the invention, for example further details of its advantages or of the problem it solves, and for which there is no basis in the application as filed, should be confined to the letter of reply rather than be incorporated into the application.
- (5) To facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT). If the applicant regards it as appropriate, these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.

# VIII. Certain Observations on the International Application

# (1) Claims 1 and 6

Claims 1 and 6 are directed towards "programme logic for the display of text passages" and "programme logic for the purpose of retrieving of text passages" respectively. The applicant's attention is drawn to the fact that claims directed towards computer programs as such are excluded from international preliminary examination in accordance with Rule 67 (vi) PCT and preliminary examination is only required to the extent that the subject matter as claimed makes a technical contribution to the known art, (cf. Preliminary Examination Guidelines IV 2.1 and 2.4 (f)). Moreover, it is noted that an invention which is the subject of international preliminary examination must be of "technical character" to the extent that it must relate to a technical field (Rule 5.1(a)(i)), must be concerned with a technical problem (Rule 5.1(a)(iii)) and must have technical features in terms of which the subject matter for which protection is sought can be defined in the claim (Rule 6.3(a)) (cf. Preliminary Examination Guidelines IV 1.2 (a)(ii)).

The wording of claims 1 and 6 suggests that they are essentially directed towards computer programs. Preliminary examination of the claims is based on the interpretation of said claims as relating to methods for the retrieval and visualization of data in the context of computerized information retrieval systems. Subject to this interpretation the subject matter of said claims can be considered to have a technical character. However, as noted below, the examiner is of the opinion that the technical features in terms of which the subject matter for which protection is sought are not clearly defined contrary to the requirements of Article 6 PCT.

## 1.1) Claim 1

The examiner submits that claim 1 does not define with sufficient clarity the essential technical features of the display arrangement described on p.3 l.3-9, p.5 l.10-15 and illustrated in Figs. 1 and 3 of the present application according to which a visual representation of a query comprising a plurality of search criteria is displayed in the central or core region of a circular display area and visual representations of text passages retrieved in response to the query are displayed in the outer sectors of the circular display area, said visual representations of said text passages thus being concentrically arranged around the core region of the display area.

The aforementioned essential features are to some extent present in the claim but are not defined with sufficient clarity. In particular, Figs. 1 and 3 suggest that it is not

the "search criteria" and "text passages" themselves which are displayed but rather visual representations thereof. Furthermore, the term "radial distance" as used without further qualification is unclear. The intention appears to be to denote the radial distance from the centre of the circular display area.

### 1.2) Claim 6

The intended meaning of the term "consecutive categories" as used in claim 6 is unclear: "criteria relevant to the solution of the task and subcriteria attributed to them of several consecutive categories".

With reference to the requirements of Rule 13 PCT concerning unity of invention, it is further noted that a plurality of independent claims in the same category directed towards diverse embodiments of an invention can normally only be allowed when there is a technical relationship among the claims involving one or more of the same or corresponding special technical features in the sense of Rule 13.2 PCT). In the present case the wording of claim 6 does not contain any special technical features which could provide the required technical relationship between its subject matter and that of claim 1 (cf. IV. above).

#### (2) Claim 5

The terms and expressions "radial beam", "radial level" and "sectors of the radial beams or levels" as used in claim 5 lack clarity.

The terms "radial beam" and a "radial level" appear to denote radial lines emanating from the visual representations of the individual search criteria as depicted in Figs. 1 and 3 but the intended distinction between a "radial beam" and a "radial level" is not clear.

Likewise, the expression "sectors of the radial beams or levels" is unclear. The intention appears to be to denote sectors of the circular display area <u>delimited by</u> the aforementioned "radial beams or levels".

## PATENT COOPERATION TREATY

From the INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY Nicholls, Michael John NOTIFICATION OF TRANSMITTAL OF J.A. KEMP & CO. THE INTERNATIONAL PRELIMINARY 14 South Square **EXAMINATION REPORT** Gray's Inn -7 AUG 2000 London WC1R 5LX (PCT Rule 71.1) GRANDE BRETAGNE Date of mailing 03.08.2000 (day/month/year) Applicant's or agent's file reference IMPORTANT NOTIFICATION N.77422 MN Priority date (day/month/year) International filing date (day/month/year) International application No. 17/07/1998 16/07/1999 PCT/EP99/05088 Applicant

- 1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
- 2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
- 3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

VIRTUAL REAL-ESTATE et al.

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

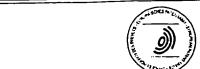
Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

Authorized officer

Schall, H



# PATENT COOPERATION TREATY

# **PCT**

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

	ent's file reference	FOR FURTHER ACTION Prelim	otification of Transmittal of International inary Examination Report (Form PCT/IPEA/416)
.77422 MN			Priority date (day/month/year)
ternational app	lication No.	International filing date (day/month/year)	17/07/1998
CT/EP99/05		16/07/1999	17/07/1990
nternational Pat 306F17/30	ent Classification (IPC)	or national classification and IPC	
pplicant		•	
/IRTUAL RE	AL-ESTATE et al.		
and is tra	nsmitted to the applic	cant according to Atticle 55.	s International Preliminary Examining Authority
2. This REP	ORT consists of a to	stal of 5 sheets, including this cover sheet.	•
been (see	افسسم استان	panied by ANNEXES, i.e. sheets of the desc ne basis for this report and/or sheets contain tion 607 of the Administrative Instructions un otal of 4 sheets.	ing room.
		ns relating to the following items:	
1 1	☑ Basis of the repo	ort .	d industrial applicability
1   1 11   1	<ul><li>☑ Basis of the repo</li><li>☐ Priority</li><li>☐ Non-establishme</li></ul>	ort ent of opinion with regard to novelty, inventive	e step and industrial applicability
1 1 11 1	Basis of the repo	ent of opinion with regard to novelty, inventive	
1   11   11   1V   V	<ul> <li>☑ Basis of the report</li> <li>☑ Priority</li> <li>☑ Non-establishme</li> <li>☑ Lack of unity of i</li> <li>☑ Reasoned state citations and ex</li> </ul>	ort ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement	
t ! ii ! iii ! iv v	<ul> <li>☑ Basis of the report</li> <li>☑ Priority</li> <li>☑ Non-establishme</li> <li>☑ Lack of unity of it</li> <li>☒ Reasoned state citations and ex</li> <li>☑ Certain docume</li> </ul>	ort ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited	
1	<ul> <li>☒ Basis of the report</li> <li>☐ Priority</li> <li>☐ Non-establishme</li> <li>☐ Lack of unity of it</li> <li>☒ Reasoned state citations and extended</li> <li>☐ Certain docume</li> <li>☐ Certain defects</li> </ul>	ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited in the international application	
1	<ul> <li>☒ Basis of the report</li> <li>☐ Priority</li> <li>☐ Non-establishme</li> <li>☐ Lack of unity of it</li> <li>☒ Reasoned state citations and extended</li> <li>☐ Certain docume</li> <li>☐ Certain defects</li> </ul>	ort ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited	
	<ul> <li>☒ Basis of the report</li> <li>☐ Priority</li> <li>☐ Non-establishme</li> <li>☐ Lack of unity of it</li> <li>☒ Reasoned state citations and extended</li> <li>☐ Certain docume</li> <li>☐ Certain defects</li> </ul>	ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited in the international application stiens on the international application	
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III IV V VI VIII VIII  Date of subm	Basis of the report Priority Non-establishme Lack of unity of it Reasoned state citations and exp Certain docume Certain defects Certain observations ission of the demand	ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited in the international application stions on the international application  Date of compositions of compositions are considered as a composition of the international application of	ty, inventive step or industrial applicability; letion of this report
III IV V VI VIII VIII  Date of subm	Basis of the report Priority Non-establishme Lack of unity of it Reasoned state citations and ext Certain docume Certain defects Certain observations ission of the demand	ent of opinion with regard to novelty, inventive invention ment under Article 35(2) with regard to novel planations suporting such statement ents cited in the international application stions on the international application  Date of composition of composition details and composition of composition details are composition of composition of composition details are considered on the composition of composition details are considered on the composition of composition details are considered on the composition details are considered on the composition of composition details are considered on the considered of composition details are considered on the composition details are considered on the considered of composition details are considered on the considered of composition details are considered on the considered of considered on the considered of considered on the consi	ty, inventive step or industrial applicability; letion of this report

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/05088

	Basis	s of the report				
	respo	onse to an invitation	lrawn on the basis of (substitute on under Article 14 are referred lo not contain amendments.):	sheets which to in this repo	have been furnished rt as "originally filed" a	to the receiving Office ii and are not annexed to
	Desc	cription, pages:				
	2-8		as originally filed			
	1,1a		as received on	23/06/2000	with letter of	21/06/2000
	Clai	ms, No.:				
	1-9		as received on	23/06/2000	with letter of	21/06/2000
	Drav	wings, sheets:				
	1/4-	4/4	as originally filed			
2.	The	amendments hav	ve resulted in the cancellation of	f: .		
		the description,	pages:			
		the claims,	Nos.:			
		the drawings,	sheets:			
3	. 🗆	This report has to considered to go	peen established as if (some of) o beyond the disclosure as filed	the amendme (Rule 70.2(c))	ents had not been mad :	de, since they have bee

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/05088

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

#### 1. Statement

Novelty (N)

Yes:

Claims 1-9

No:

Claims

Inventive step (IS)

Yes: Claims 1-9

No: Claims

Industrial applicability (IA)

Yes:

Claims 1-9

Claims

No:

2. Citations and explanations

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

## INTERNATIONAL PRELIMINARY Inter EXAMINATION REPORT - SEPARATE SHEET

# V. Reasoned Statement under Article 35 (2)

## (1) Cited Prior Art

Reference is made to the following documents:

- D1: FOWLER R H ET AL: 'INTEGRATING QUERY, THESAURUS, AND DOCUMENTS THROUGH A COMMON VISUAL REPRESENTATION' PROCEEDINGS OF THE ANNUAL INTERNATIONAL ACM/SIGIR CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL, CHICAGO, OCT. 13 16, 1991, no. CONF. 14, 13 October 1991 (1991-10-13), pages 142-151, XP000239166 BOOKSTEIN A; CHIARAMELLA Y; SALTON G; RAGHAVAN V;
- D2: HEMMJE M ET AL: 'LYBER WORLD A VISUALIZATION USER INTERFACE SUPPORTING FULLTEXT RETRIEVAL' SIGIR '94, DUBLIN, JULY 3 6, 1994, no. CONF. 17, 3 July 1994 (1994-07-03), pages 249-259, XP000475325 CROFT W B;VAN RIJSBERGEN C J (EDITORS);
- D3: LAMPING J ET AL: 'A FOCUS+CONTEXT TECHNIQUE BASED ON HYPERBOLIC GEOMETRY FOR VISUALIZING LARGE HIERARCHIES' HUMAN FACTORS IN COMPUTING SYSTEMS, CHI '95 CONFERENCE PROCEEDINGS. DENVER, MAY 7 11, 1995,7 May 1995 (1995-05-07), pages 401-408, XP000538470 KATZ I R ET AL (ED ) ISBN: 0-201-84705-1;
- D4: G.G. ROBERTSON ET AL.: "Cone Trees: Animated 3D Visualizations of Hierarchical Information", HUMAN FACTORS IN COMPUTING SYSTEMS CONFERENCE PROCEEDINGS, READING, USA, 27. April 1991, pages 189 to 194, XP 002002888;

The document D4 was not cited in the International Search Report.

# (2) Claims 1-9

#### 2.1) Claim 1

In the field of information retrieval (IR) systems it is generally known to use circular display regions for the visualization of informational relationships. D2 is considered to be the closest prior art with respect to the subject matter of claim 1. Said document discloses the design of IR tools for the visualization of information "content spaces" (D2: 2. What has to be Visualized? - Modelling a Spatial Information Navigation, paragraphs 1 and 2, p.250) and more particularly discloses the display of text passages ("documents") arranged on a screen in relation to a combination of search criteria ("terms") with the radial distances of the individual text passages

# INTERNATIONAL PRELIMINARY International application No. PCT/EP99/05088 EXAMINATION REPORT - SEPARATE SHEET

("documents") from the search criteria showing their relevance to the combination of the search criteria ("terms"), cf. Figs.6-8 and 13-16.

The teaching of D2 appears to be restricted to an arrangement in which the combination of search criteria ("term nodes") are placed around the circumference of the display area ("relevance sphere") with the text passages ("documents") being arranged <u>inside</u> the display area, (cf. p.253 l.20-31).

In the display arrangement recited in claim 1, visual representations of a combination of search criteria are displayed in the central or core region of the circular display area and visual representations of the text passages identified as relevant to the search criteria are displayed in the outer sectors of the circular display area, thus being concentrically arranged around the visual representations of the combination of search criteria. The display arrangement recited in said claim does not appear to be disclosed or rendered obvious by the available prior art.

In view of the apparent lack of prejudicial disclosure, the subject matter of claim 1 is considered to meet the requirements of Article 33 PCT in respect of novelty, inventive step and industrial applicability.

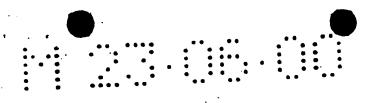
# 3.2) Dependent Claims 2-9

Inasmuch as claim 1 is considered to meet the requirements of Article 33 PCT as indicated in 2.1 above, claims 2-9 dependent thereon may also be considered to meet these requirements.

# VIII. Certain Observations on the International Application

# (1) Claim 1

The term "<u>usual</u> representation(s)" used in claim 1 (p.9 lines 11-12) appears to be a typographical error. The applicant's intention is understood to be to refer to the previously recited "visual representation(s)".



# Program Logic For Displaying Text Passages On A Screen

The present invention concerns a programme logic for displaying text passages which are relevant for the solution of a task on a screen by using at least one data memory for text passages which are electronically stored; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen.

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Carrying out of searches for text passages by using at least one data memory is well-known. For that purpose search criteria, in particular search words, are entered into the data memory, whereupon the text passages relevant to such criteria will be displayed on a screen. However, the known processes for the carrying out of searches for text passages have the disadvantage that it cannot be seen on the screen what relevance the text passages displayed have with respect to the search criteria. This applies, in particular, if searches are made with respect to a combination of search criteria.

The article by Fowler et al entitled "Integrating Query, Thesaurus and Document Through a Common Visual Representation"; proceedings of the Annual International ACM/SIGIR Conference on Research & Development in Information Retrieval, Chicago, October 13-16 1991, No. Conf. 14-30 October 1991, pages 142-151 discloses the use of visually displayed graphic structures and a direct manipulation interface for use in document retrieval. A visually displayed network structure is used and a natural language query is converted into a visually displayed network structure, the manipulation of the network structure then allowing manipulation of the query.

The article by Hemmje et al entitled "Lyber World - A Visualisation User Interface Supporting Full Text Retrieval", SIGIR 1994, Dublin, July 3-6 1994, No. 25 Conf. 17, 3 July 1994, pages 249 to 259 discloses a graphical user interface for use in an information retrieval system in which text passages are displayed on a screen in relation to set criteria with radial distances between the two indicating the degree of relevance. The search criteria are placed around the circumference of the display area, with the text passages being arranged inside the display area.

-1a-

The article by Lamping et al entitled "A Focus and Context Technique based on hyperbolic geometry for visualising large hierarchies"; Human Factors in computing systems, CHL 1995 conference proceedings, Denver, May 7-11 1995, pages 401-408 discloses a method of displaying a hierarchy in a circular display region with its root at the centre, and branches extending out from the centre, those branches then branching further toward the circumference of the circle.

The article by G G Robertson et al entitled "Cone Trees: Animated 3-D Visualisations of Hierarchical Information", Human Factors in Computing Systems conference proceedings, Reading, USA, 27 April 1991, pages 189-194 discloses a similar visual display known as a cone tree, but in three dimensions.

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The present invention is based on the task of creating an improved method through which in case of a search by means of a combination of search criteria the text passages found thereby are displayed on the screen in such a way that their relevance in relation to the individual search criteria is shown. According to this invention, this objective is achieved by concentrically arranging the text passages on the screen around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance in respect of the search criteria.

Preferably the individual search criteria are attributed to sectors on the screen, with the individual text passages being shown on the screen in the sectors of that search criterion for which they are most relevant. A radial beam or a radial level, respectively, can lead from each of the search criteria shown in the centre, with the text passages relevant to the individual search criterion being shown in the sectors of the radial beams or levels, respectively, or those text passages which are relevant to two of the search criteria being shown in those sectors which are defined by the beams or levels attributed to such search criteria. In this connection, the display can be two-dimensional or three-dimensional.

#### **CLAIMS**

- 1. A method for the display of text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages; wherein upon entering a combination of search criteria visual representations of the combination of search criteria (B, S, T) and of the text passages (bit, fff), relevant to such combination are displayed on the screen, the visual representation of the combination of search criteria (B, S, T) being displayed in the centre of the screen and said usual representations of the text passages being arranged on the screen concentrically around the usual representation of the combination of the search criteria (B, S, T), with the radial distances of the visual representation of the individual text passages (bit, fff) from the visual representation of the combination of search criteria (B, T, S) showing their relevance to the combination of the search criteria.
  - 2. A method according to claim 1, wherein sectors of the screen are attributed to the individual search criteria (B, S, T), with the visual representations of individual text passages (bit, fff) being displayed on the screen in the sectors of that search criterion (B, S, T) for which they are most relevant.
  - 3. A method according to claim 1 or 2, wherein the visual representations of the passages (bit, fff) are displayed on the screen in two or three dimensions.
    - 4. A method according to claim 2 or 3 wherein a radial line is displayed extending from each of the visual representations of the search criterion (B, S, T) displayed in the centre of the screen, with the visual representations of the text passages (bit, fff) relevant to an individual one of the search criteria (B, S, T) being shown adjacent the corresponding radial line.

- 5. A method according to claim 4, wherein the visual representations of those text passages (bit, fff) which are relevant to two of the search criteria (B, S, T) are shown in sectors of the screen delimited by the radial lines corresponding to the two search criteria (B, S, T).
- 6. A method according to any one of claims 1 to 5 wherein visual representations of a plurality of criteria relevant to the solution of the task and subcriteria attributed to them are shown on the screen.
- 7. A method according to claim 6, wherein also visual representations of subcriteria of a lower level of hierarchy attributed to each of the subcriteria are arranged radially around the visual representations of the subcriteria.
- 8. A method according to claim 7, characterised by the fact the visual representations of the subcriteria of the lower level of the hierarchy are arranged around the visual representation of the respective superior criterion on the screen in a three-dimensional radial order.
  - 9. A method according to any one of the preceding claims wherein the
    distance between each of the representations of text passages and the centre of the
    screen increases as the number of search criteria to which that text passage is relevant decreases.

PCT

From the INTERNATIONAL BUREAU

To:

**ROYAUME-U** 

INFORMATION CONCERNING ELECTED OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

NICHOLLS, McRael Aoh (EMP & CO J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX

Date of mailing (day/month/year)

22 March 2000 (22.03.00)

Applicant's or agent's file reference

N.77422 MN

IMPORTANT INFORMATION

International application No.

PCT/EP99/05088

International filing date (day/month/year) 16 July 1999 (16.07.99)

Priority date (day/month/year) 17 July 1998 (17.07.98)

**Applicant** 

VIRTUAL REAL-ESTATE et al

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP:GH,GM,KE,LS,MW,SD,SL,SZ,UG,ZW
EP:AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE
National:AU,BG,BR,CA,CN,CZ,DE,IL,JP,KP,KR,MN,NO,NZ,PL,RO,RU,SE,SK,US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA: AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA:BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG

National :AE,AL,AM,AT,AZ,BA,BB,BY,CH,CU,DK,EE,ES,FI,GB,GD,GE,GH,GM,HR,HU,

ID,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MW,MX,PT,SD,SG,SI,SL,TJ,

TM,TR,TT,UA,UG,UZ,VN,YU,ZA,ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Authorized officer:

Beate Giffo-Schmitt

Telephone No. (41-22) 338.83.38

Facsimile No. (41-22) 740.14.35

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# PCT

WIPO PCT

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant'	s or age	ent's file reference	T	See Notification of Transmittal of International					
N.77422 MN			FOR FURTHER ACTION Preliminary Examination Report (Form PCT/IPEA/416)						
International application No.			International filing date (day/mont	h/year) Priority date (day/month/year)					
PCT/EP99/05088			16/07/1999	17/07/1998					
G06F17	7/30	ent Classification (IPC) or no	ational classification and IPC						
1. This	intern		nination report has been prepare according to Article 36.	ed by this International Preliminary Examining Authority					
2. This	REPO	ORT consists of a total of	f 5 sheets, including this cover	sheet.					
	The state of the s								
	s repor		lating to the following items:						
II 🗆 Priority				P 1 95					
1	II 🗆	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability							
	IV ☐ Lack of unity of invention V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;								
`	<b>∨</b> ⊠	Reasoned statement citations and explana	under Afficie 35(2) with regard to tions suporting such statement	o novelty, inventive step of industrial applicability,					
V	/I 🗀	Certain documents c							
v	ii 🗆	Certain defects in the	international application						
VI	II 🗵	Certain observations	on the international application						
Date of :	submiss	sion of the demand	Date o	of completion of this report					
08/02/2000			03.08	03.08.2000					
Name and mailing address of the international preliminary examining authority:  European Patent Office			nal Autho	Authorized officer					
D-80298 Munich			1	oran, P					
		I. +49 89 2399 - 0  Tx: 5236 Ix: +49 89 2399 - 4465	•	hone No. +49 89 2399 2146					

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/05088

l. E	Basis	of	the	report	t

1. This report has been drawn on the basis of (substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.):

		,									
	Description, pages:										
	2-8		as originally filed								
	1,1a		as received on	23/06/2000	with letter of	21/06/2000					
	Claims, No.:										
	1-9		as received on	23/06/2000	with letter of	21/06/2000					
	Drawings, sheets:										
	1/4-4/4		as originally filed								
2.	The	amendments hav	re resulted in the cancellation of:								
		the description,	pages:								
		the claims,	Nos.:								
		the drawings,	sheets:								
3.	☐ This report has been established as if (some of) the amendments had not been made, since they have beer considered to go beyond the disclosure as filed (Rule 70.2(c)):										
4.	Add	litional observation	ns, if necessary:								

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/05088

- V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- 1. Statement

Novelty (N)

Yes:

Claims 1-9

No:

Claims

Inventive step (IS)

Yes:

Claims 1-9

No:

Claims

Industrial applicability (IA)

Yes:

Claims 1-9

No:

Claims

2. Citations and explanations

see separate sheet

### VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

## V. Reasoned Statement under Article 35 (2)

#### (1) Cited Prior Art

Reference is made to the following documents:

- D1: FOWLER R H ET AL: 'INTEGRATING QUERY, THESAURUS, AND DOCUMENTS THROUGH A COMMON VISUAL REPRESENTATION' PROCEEDINGS OF THE ANNUAL INTERNATIONAL ACM/SIGIR CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL, CHICAGO, OCT. 13 16, 1991, no. CONF. 14, 13 October 1991 (1991-10-13), pages 142-151, XP000239166 BOOKSTEIN A; CHIARAMELLA Y; SALTON G; RAGHAVAN V;
- D2: HEMMJE M ET AL: 'LYBER WORLD A VISUALIZATION USER INTERFACE SUPPORTING FULLTEXT RETRIEVAL' SIGIR '94, DUBLIN, JULY 3 6, 1994, no. CONF. 17, 3 July 1994 (1994-07-03), pages 249-259, XP000475325 CROFT W B; VAN RIJSBERGEN C J (EDITORS);
- D3: LAMPING J ET AL: 'A FOCUS+CONTEXT TECHNIQUE BASED ON HYPERBOLIC GEOMETRY FOR VISUALIZING LARGE HIERARCHIES' HUMAN FACTORS IN COMPUTING SYSTEMS, CHI '95 CONFERENCE PROCEEDINGS. DENVER, MAY 7 11, 1995,7 May 1995 (1995-05-07), pages 401-408, XP000538470 KATZ I R ET AL (ED ) ISBN: 0-201-84705-1;
- D4: G.G. ROBERTSON ET AL.: "Cone Trees: Animated 3D Visualizations of Hierarchical Information", HUMAN FACTORS IN COMPUTING SYSTEMS CONFERENCE PROCEEDINGS, READING, USA, 27. April 1991, pages 189 to 194, XP 002002888;

The document D4 was not cited in the International Search Report.

### (2) Claims 1-9

#### 2.1) Claim 1

In the field of information retrieval (IR) systems it is generally known to use circular display regions for the visualization of informational relationships. D2 is considered to be the closest prior art with respect to the subject matter of claim 1. Said document discloses the design of IR tools for the visualization of information "content spaces" (D2: 2. What has to be Visualized? - Modelling a Spatial Information Navigation, paragraphs 1 and 2, p.250) and more particularly discloses the display of text passages ("documents") arranged on a screen in relation to a combination of search criteria ("terms") with the radial distances of the individual text passages

("documents") from the search criteria showing their relevance to the combination of the search criteria ("terms"), cf. Figs.6-8 and 13-16.

The teaching of D2 appears to be restricted to an arrangement in which the combination of search criteria ("term nodes") are placed around the circumference of the display area ("relevance sphere") with the text passages ("documents") being arranged <u>inside</u> the display area, (cf. p.253 l.20-31).

In the display arrangement recited in claim 1, visual representations of a combination of search criteria are displayed in the central or core region of the circular display area and visual representations of the text passages identified as relevant to the search criteria are displayed in the outer sectors of the circular display area, thus being concentrically arranged around the visual representations of the combination of search criteria. The display arrangement recited in said claim does not appear to be disclosed or rendered obvious by the available prior art.

In view of the apparent lack of prejudicial disclosure, the subject matter of claim 1 is considered to meet the requirements of Article 33 PCT in respect of novelty, inventive step and industrial applicability.

### 3.2) Dependent Claims 2-9

Inasmuch as claim 1 is considered to meet the requirements of Article 33 PCT as indicated in **2.1** above, claims 2-9 dependent thereon may also be considered to meet these requirements.

## VIII. Certain Observations on the International Application

### (1) Claim 1

The term "<u>usual</u> representation(s)" used in claim 1 (p.9 lines 11-12) appears to be a typographical error. The applicant's intention is understood to be to refer to the previously recited "visual representation(s)".



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#### Program Logic For Displaying Text Passages On A Screen

The present invention concerns a programme logic for displaying text passages which are relevant for the solution of a task on a screen by using at least one data memory for text passages which are electronically stored; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen.

Carrying out of searches for text passages by using at least one data memory is well-known. For that purpose search criteria, in particular search words, are entered into the data memory, whereupon the text passages relevant to such criteria will be displayed on a screen. However, the known processes for the carrying out of searches for text passages have the disadvantage that it cannot be seen on the screen what relevance the text passages displayed have with respect to the search criteria. This applies, in particular, if searches are made with respect to a combination of search criteria.

The article by Fowler et al entitled "Integrating Query, Thesaurus and

Document Through a Common Visual Representation"; proceedings of the Annual International ACM/SIGIR Conference on Research & Development in Information Retrieval, Chicago, October 13-16 1991, No. Conf. 14-30 October 1991, pages 142-151 discloses the use of visually displayed graphic structures and a direct manipulation interface for use in document retrieval. A visually displayed network structure is used and a natural language query is converted into a visually displayed network structure, the manipulation of the network structure then allowing manipulation of the query.

The article by Hemmje et al entitled "Lyber World - A Visualisation User Interface Supporting Full Text Retrieval", SIGIR 1994, Dublin, July 3-6 1994, No. 25 Conf. 17, 3 July 1994, pages 249 to 259 discloses a graphical user interface for use in an information retrieval system in which text passages are displayed on a screen in relation to set criteria with radial distances between the two indicating the degree of relevance. The search criteria are placed around the circumference of the display area, with the text passages being arranged inside the display area.



The article by Lamping et al entitled "A Focus and Context Technique based on hyperbolic geometry for visualising large hierarchies"; Human Factors in computing systems, CHL 1995 conference proceedings, Denver, May 7-11 1995, pages 401-408 discloses a method of displaying a hierarchy in a circular display region with its root at the centre, and branches extending out from the centre, those branches then branching further toward the circumference of the circle.

The article by G G Robertson et al entitled "Cone Trees: Animated 3-D Visualisations of Hierarchical Information", Human Factors in Computing Systems conference proceedings, Reading, USA, 27 April 1991, pages 189-194 discloses a similar visual display known as a cone tree, but in three dimensions.

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The present invention is based on the task of creating an improved method through which in case of a search by means of a combination of search criteria the text passages found thereby are displayed on the screen in such a way that their relevance in relation to the individual search criteria is shown. According to this invention, this objective is achieved by concentrically arranging the text passages on the screen around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance in respect of the search criteria.

Preferably the individual search criteria are attributed to sectors on the screen, with the individual text passages being shown on the screen in the sectors of that search criterion for which they are most relevant. A radial beam or a radial level, respectively, can lead from each of the search criteria shown in the centre, with the text passages relevant to the individual search criterion being shown in the sectors of the radial beams or levels, respectively, or those text passages which are relevant to two of the search criteria being shown in those sectors which are defined by the beams or levels attributed to such search criteria. In this connection, the display can be two-dimensional or three-dimensional.



#### **CLAIMS**

- 1. A method for the display of text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages; wherein upon entering a combination of search criteria visual representations of the combination of search criteria (B, S, T) and of the text passages (bit, fff), relevant to such combination are displayed on the screen, the visual representation of the combination of search criteria (B, S, T) being displayed in the centre of the screen and said usual representations of the text passages being arranged on the screen concentrically around the usual representation of the combination of the individual text passages (bit, fff) from the visual representation of the combination of search criteria (B, T, S) showing their relevance to the combination of the search criteria.
  - 2. A method according to claim 1, wherein sectors of the screen are attributed to the individual search criteria (B, S, T), with the visual representations of individual text passages (bit, fff) being displayed on the screen in the sectors of that search criterion (B, S, T) for which they are most relevant.
- 3. A method according to claim 1 or 2, wherein the visual representations of the passages (bit, fff) are displayed on the screen in two or three dimensions.
  - A method according to claim 2 or 3 wherein a radial line is displayed extending from each of the visual representations of the search criterion (B, S, T) displayed in the centre of the screen, with the visual representations of the text passages (bit, fff) relevant to an individual one of the search criteria (B, S, T) being shown adjacent the corresponding radial line.

- 5. A method according to claim 4, wherein the visual representations of those text passages (bit, fff) which are relevant to two of the search criteria (B, S, T) are shown in sectors of the screen delimited by the radial lines corresponding to the two search criteria (B, S, T).
- 6. A method according to any one of claims 1 to 5 wherein visual representations of a plurality of criteria relevant to the solution of the task and subcriteria attributed to them are shown on the screen.

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- 7. A method according to claim 6, wherein also visual representations of subcriteria of a lower level of hierarchy attributed to each of the subcriteria are arranged radially around the visual representations of the subcriteria.
  - 8. A method according to claim 7, characterised by the fact the visual representations of the subcriteria of the lower level of the hierarchy are arranged around the visual representation of the respective superior criterion on the screen in a three-dimensional radial order.
- 9. A method according to any one of the preceding claims wherein the
  20 distance between each of the representations of text passages and the centre of the
  screen increases as the number of search criteria to which that text passage is relevant
  decreases.

W July 34 wo 00/04463

4/PRTS

09/743975 528 c'd PCT/PTO 17 JAN 2001

# Program Logic For Displaying Text Passages On A Screen

The present invention concerns a programme logic for displaying text passages which are relevant for the solution of a task on a screen by using at least one data memory for text passages which are electronically stored; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen.

Carrying out of searches for text passages by using at least one data memory is well-known. For that purpose search criteria, in particular search words, are entered into the data memory, whereupon the text passages relevant to such criteria will be displayed on a screen. However, the known processes for the carrying out of searches for text passages have the disadvantage that it cannot be seen on the screen what relevance the text passages displayed have with respect to the search criteria. This applies, in particular, if searches are made with respect to a combination of search criteria.

Thus, the present invention is based on the task of creating a programme logic through which in case of a search by means of a combination of search criteria the text passages found thereby are displayed on the screen in such a way that their relevance in relation to the individual search criteria is shown. According to this invention, this objective is achieved by concentrically arranging the text passages on the screen around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance in respect of the search criteria.

Preferably the individual search criteria are attributed to sectors on the screen, with the individual text passages being shown on the screen in the sectors of that search criterion for which they are most relevant. A radial beam or a radial level, respectively, can lead from each of the search criteria shown in the centre, with the text passages relevant to the individual search criterion being shown in the sectors of the radial beams or levels, respectively, or those text passages which are relevant to two of the search criteria being shown in those sectors which are defined by the beams or levels attributed to such search criteria. In this connection, the display can be two-dimensional or three-dimensional.

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#### **CLAIMS**

- 1. Programme logic for the display of text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen, marked by the fact that the text passages are arranged on the screen concentrically around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance to the combination of the search criteria.
- 2. Programme logic pursuant to Claim 1, characterised by the fact that the individual search criteria on the screen are attributed to sectors, with the individual text passages being displayed on the screen in the sectors of that search criterion for which they are most relevant.
- 3. Programme logic pursuant to one of Claims I and 2, characterised by the fact that the text passages are displayed on the screen in two or three dimensions.
- 4. Programme logic pursuant to one of the Claims 2 or 3, characterised by the fact that a radial beam or a radial level departs from every search criterion shown in the centre, with the text passages relevant to the individual search criteria being shown in the sectors of the radial beams or levels, respectively.
- 5. Programme logic pursuant to Claim 4, characterised by the fact that those text passages which are relevant to two of the search criteria are shown in those sectors which are defined by the beams or levels attributed to such search criteria.
- 6. Programme logic for the purpose of retrieving text passages relevant to the solution of a programme by using one screen and at least one data memory for electronically stored text passages characterised by the fact that a number of criteria relevant to the solution of the task and subcriteria attributed to them of several consecutive categories are shown on the screen and that, subsequently, based on a combination of search criteria a text search in at least one data memory is carried out, the result of which can also be displayed on the screen.

- 7. Programme logic pursuant to Claim 6, characterised by the fact that also the subcriteria of a second category attributed to the subcriteria of a first category are arranged around these subcriteria of the first category in a radial order.
- 8. Programme logic pursuant to Claim 7, characterised by the fact the subcriteria attributed to one criterion are arranged around the respective superior criterion on the screen in a three-dimensional radial order.

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(71) Applicant (for all designated States except US): VIRTUAL REAL-ESTATE [AT/AT]; Breite Gasse 3/2, A-1070 Wien (AT).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): DÖGL, Christian [AT/AT]; Breite Gasse 3/2, A-1070 Wien (AT). DÖGL, Daniel [AT/AT]; Geusaugasse 33/14, A-1030 Wien (AT). BINDER, Katharina [AT/AT]; Geusaugasse 33/14, A-1030 Wien (AT). CAVALLAR, Claudia [IT/AT]; Gobergasse 54, A-1130 Wien (AT). SCHWAB, Reinhard [AT/AT]; Kahlenbergerstrasse 14, A-1190 Wien (AT).
- (74) Agent: NICHOLLS, Michael, John; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5LX (GB).

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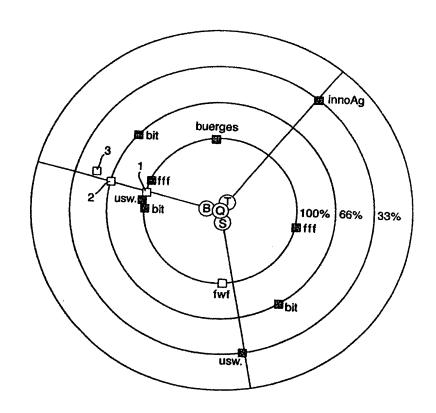
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### (57) Abstract

Programme logic for the display of text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages, with the relevant text passages being displayed on the screen upon entering a combination of search criteria. The text passages are displayed on the screen in concentric order around the combination of the search criteria, with the radial distances of the individual text passages expressing their relevance to the combination of the search criteria.



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### Program Logic For Displaying Text Passages On A Screen

The present invention concerns a programme logic for displaying text passages which are relevant for the solution of a task on a screen by using at least one data memory for text passages which are electronically stored; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen.

Carrying out of searches for text passages by using at least one data memory is well-known. For that purpose search criteria, in particular search words, are entered into the data memory, whereupon the text passages relevant to such criteria will be displayed on a screen. However, the known processes for the carrying out of searches for text passages have the disadvantage that it cannot be seen on the screen what relevance the text passages displayed have with respect to the search criteria. This applies, in particular, if searches are made with respect to a combination of search criteria.

Thus, the present invention is based on the task of creating a programme logic through which in case of a search by means of a combination of search criteria the text passages found thereby are displayed on the screen in such a way that their relevance in relation to the individual search criteria is shown. According to this invention, this objective is achieved by concentrically arranging the text passages on the screen around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance in respect of the search criteria.

Preferably the individual search criteria are attributed to sectors on the screen, with the individual text passages being shown on the screen in the sectors of that search criterion for which they are most relevant. A radial beam or a radial level, respectively, can lead from each of the search criteria shown in the centre, with the text passages relevant to the individual search criterion being shown in the sectors of the radial beams or levels, respectively, or those text passages which are relevant to two of the search criteria being shown in those sectors which are defined by the beams or levels attributed to such search criteria. In this connection, the display can be two-dimensional or three-dimensional.

Furthermore, the present invention is based on the task of creating a programme logic for obtaining text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages.

The recording of terms contained in text passages and displaying them on a screen with their relevance to each other being expressed through their arrangement to each other is well known. In particular, this makes it possible to show terms which are subordinate to particular terms of a number of subsequent categories and, subsequently, relevant text passages may be retrieved from a data memory for respective terms, whereupon they are displayed on the screen. This allows you to obtain the text passages relevant to the solution of an existing task. However, this obtaining of text passages is based on the prerequisite that the criteria which are relevant for the solution of a given task are known. If these criteria are not known, it is not possible to find/retrieve the text passages available for that purpose.

Thus, the present invention is also based on the task of creating a programme logic by which the text passages relevant to the solution of an existing task may be found in a very simple manner. The invention solves this task through showing the relevant criteria and the subcriteria attributed to them of several consecutive categories on the screen, whereupon, based on a combination of search criteria, a text search can be carried out in at least one data memory, the result of which can also be displayed on the screen.

Programme logics of the invention are explained in more detail in the following by means of implementation examples shown in the drawing:

- chart I shows text passages retrieved by means of a search, which are displayed on a screen, with their relevance to several search criteria being expressed/shown;
- chart 2 shows terms and subordinate terms displayed on a screen and attributed to a search criterion; and

chart 3 shows text passages pursuant to chart 1 in combination with terms and subordinate terms pursuant to chart 2.

Chart 1 shows the result of a text search carried out by using three search terms. The query is represented by the letter Q. The search terms are described by the letters B, T and S, each of which lie on a radial beam, with these beams together forming an angle of 120°. The letter Q stands for the term QUERY and the letters B, S and T stand for the terms BENÜTZERPROFILE [USER PROFILES], SERVICEANGEBOT [SERVICE OFFER] and BETÄTIGUNGSFELDER [FIELDS OF ACTIVITY]. The centre Q is surrounded by three centric circles 1, 2 and 3 alongside which the text passages found are shown.

Alongside the most inner circle, 1, those text passages are shown which are relevant in relation to all of the three search terms, B, S and T, so that these text passages meet 100% of the search criteria. In addition, the position of the information close to the beams attributed to the terms B, T or S, respectively, expresses the frequency of the respective search terms in these text passages.

In this chart, alongside circle 1 close to the beam attributed to term B, there are a number of pieces of information, which means that the respective text passages are of particular relevance to search term B. On the other hand, there are several additional pieces of information alongside circle 1 between the beams attributed to terms B and T, and terms T and S, respectively, which shows that these text passages are equivalent with respect to search terms B and T and T and S, respectively. Outside of circle 1 there are circles 2 and 3, alongside which those text passages are shown which are only relevant to two of the search terms, meeting 66% of the search criteria, or which are only relevant to one single search term, meeting 33% of the search criteria, with the position of the piece of information in relation to the beams again showing in respect of which search term or terms these text passages are relevant.

Instead of a two-dimensional display, the display may also be three-dimensional, with the text passages being shown alongside concentric spheres.

An alternative in showing the results of the text search is to only show references in the first chart and, by means of additional criteria such as shadings and/or colours to express the frequency in which the respective search terms are contained in these references. Subsequently, these references may be retrieved alone and the text passages themselves can be displayed on the screen.

Thus, this programme logic makes it possible to immediately see the frequency of search terms in text passages and/or references and the relevance of such text passages and/or references with respect to several search terms, which makes the retrieval of text passages and the evaluation thereof considerably easier.

In the following, chart 2 explains a programme logic for retrieval of text passages relevant to the solution of a given task. In the centre of the chart the search term Q-QUERY is shown, which refers to the terms RESEARCH, TECHNOLOGY, INNOVATION. The terms B-USER PROFILES, T-FIELDS OF ACTIVITY and S-SERVICE OFFER are attributed to that search term, which terms are displayed on the screen arranged around the search term in beams and in a smaller size. In relation to the term USER PROFILES, these are the subordinate terms RESEARCHER/SCIENTIST, INVESTOR, PRIVATE PERSON and ENTREPRENEUR.. The subordinate terms of the second category are displayed around the respective subordinate term to which they are attributed, again in a smaller size. This beam-wise display of the individual terms attributed to a search term and of the respective subordinate terms attributed to them of several consecutive criteria can be shown on the screen in two dimensions or three dimensions.

For the user of this search programme this display leads to a very clear arrangement of the terms of equal importance or subordinate importance, which makes it easier to select the terms to be used for carrying out the search. Based on the terms the subordinate terms existing in relation to them of several subsequent categories are displayed on the screen.

The subordinate terms attributed to a term or a subordinate term are being retrieved until that subordinate term is displayed on the screen on which the text search is to be based. Subsequently, at least one additional subordinate term will be retrieved based on a different term,

which subordinate term will also be included in the text search. Thus, at least one term or a combination of terms will be retrieved which may be used for carrying out the text search.

The fact that the programme contains a number of search criteria for a given task which may be of importance for the solution of that task is of importance to this programme. Subordinate search criteria are attributed to such search criteria which, on their part, are supplemented by subordinate search criteria. The user of this programme may retrieve the criteria and/or subcriteria required for the solution of a task. Subsequently, the text passages available for the combination of the relevant criteria may be retrieved and displayed on the screen as has been explained by means of chart 1.

Finally, chart 3 shows the combination of the procedures explained by means of chart 1 and 2. On the one hand, the screen displays the text passages found with respect to the search criteria. On the other hand, additional search terms and search terms subordinate to them are displayed with the aim of supplementing the search by text passages relevant to such additional search terms or evaluating the search by considering these search terms, e.g., in such a way that a part of the text passages will be eliminated.

### KEY CHART 2

gründg. ausl. niederlassg.
unternehmensgründung
neugründung
änderung der rechtsform.
firmenzusammenlegung
ausbildung/schulung
qualitätssicherung
eigeninvestitionen
personal
zukauf (innov.) produkte
zukauf know how/wissen
filialen/in- ausland
markterschließung
produktionsumstellung

establishment of a branch abroad foundation of a business enterprise foundation of a new enterprise change of legal form merger education/training quality control own investments personnel purchase of (innovative) products purchase of know how/knowledge branches/domestic, foreign tapping of markets change in production

neue geschäftsbereiche new fields of business verfahrensverbesserung improvement of processes produktverbesserung improvement of products

entw. neuer technologien development of new technologies

verfahrensentwicklung development of processes
produktentwicklung product development

versuche/testreihen tests/test series
pilotprojekte pilot projects

studien/konzepte studies/concepts

dissertationen/diplomarbeiten academic/graduation papers

forschungsarbeiten research
veranstaltungen events

publikationen publications
content verwertung content exploitation

einreichung von projekten filing of projects

wettbewerbsteilnahme (participation in) competition

grundlagenforschung basic research
angewandte forschung applied research

beteiligungsmöglichkeiten investment opportunities

investitionen investments
betätigungsfelder fields of activity

software/multimedia =

telekom/info. techn. telecommunicationsinformation technology

umwelttechnik environmental technology

biotechnologie biotechnology
materialwissenschaften material sciences
energietechnik engergy technology

bundländer/europa/intl. federal government/provinces

traffic engineering

/Europe/international
mit unternehmen business enterprises

zwischen unternehmen among business enterprises

mit forschungseinrichtungen research institutions

zwischen forschungseinrichtungen among research institutions

beteiligungen investments

partner (kooperationen) partners of (cooperation with)

ausbildung training

verkehrstechnik

service angebot service offer

information/beratung information/consultancy business

rechtsberatung legal counsel

förderungsanträge applications for financial aid förderungsrichtlinien guidelines for financial aid

success stories =

ansprechpartner contact persons

sonderprogramme special programmes

evt. einträge aus ergänzungen possible entries from supplements

zu investoren zu unternehmen with investors, with business

enterprises

zu forschungseinrichtungen with research institutions

ansprechpartner in institutionen contact persons at institutions

kontakt contact finanzierung financing

finanzmittel (privatwirtsch.) financial means (private economy)

venture capital = darlehen loans

kredit credit facilities

joint venture =

investoren investors
beteiligungen investments

sponsoring =

förderungen subsidies

mezzanindarlehen "mezzanin" loan

seedfinancing =

fördermix mix of financial aid

nicht rückzahlbare zuschüsse non-repayable subsidies

zinsenzuschüsse zu bankkrediten interest subsidies for bank loans zinsengünstige kredite loans with favourable interest terms

haftungsübernahme assumption of liability

risikoreduktion reduction of risk
unternehmer/n entrepreneur(s)

standort location

geschlecht

tochterunternehmen

industrie/gewerbe/handel industry/trade

stiftungen foundations/trusts

KMU/großbetrieb/einzelunternehmen/ARGE small and medium-size

enterprises/large enterprises/sole

proprietorships/work groups

sex

subsidiaries

konzerne (multinationale) groups (multinational)

benutzerprofile user profiles

private person private person

wohnort (nationalität) residence (nationality)

geschlecht sex

weiß nicht/anderes don't know/others

investor =

private person private person

universität university

forscher/wissenschaftler researcher/scientist

unternehmen (at) business enterprises

forschungszentrum research centre

erfindungen/patente inventions/patents

beteiligungsmöglichkeiten investitionen investment

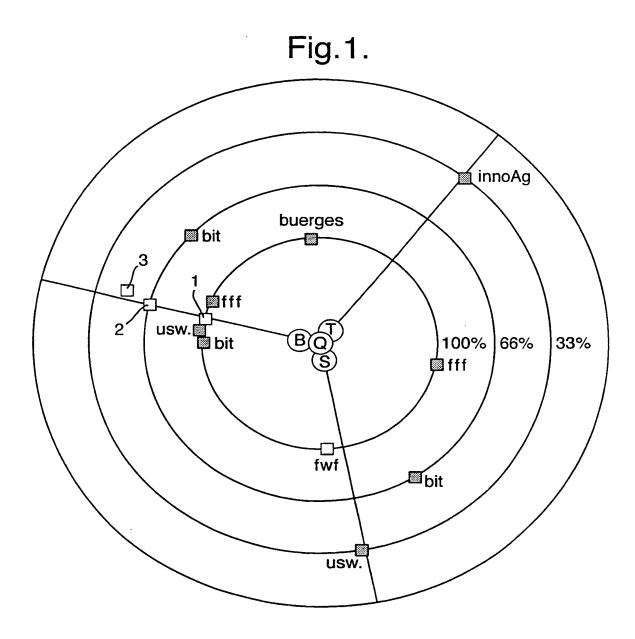
opportunities/investments

### **CLAIMS**

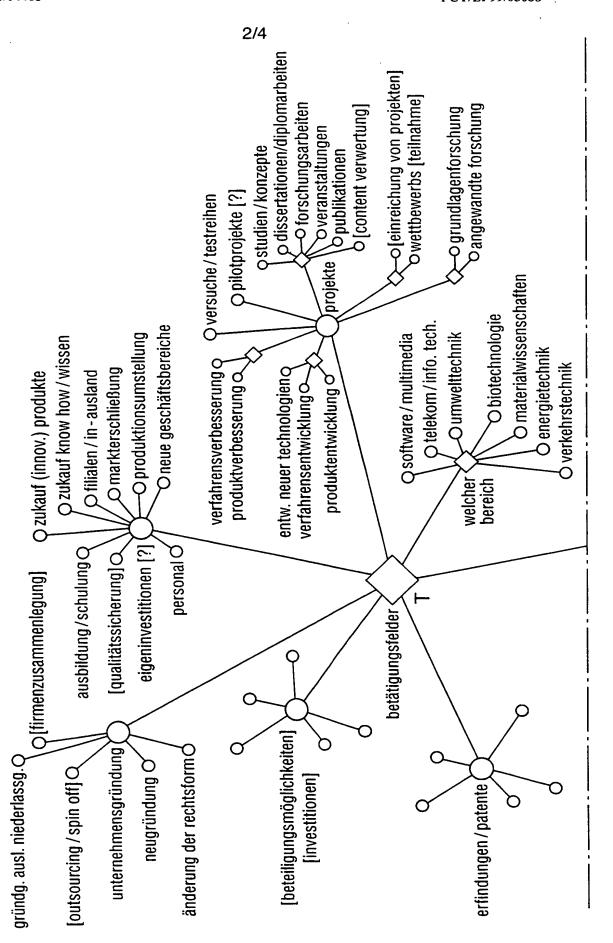
- 1. Programme logic for the display of text passages relevant to the solution of a task by using a screen and at least one data memory for electronically stored text passages; upon entering a combination of search criteria the text passages relevant to such combination will be displayed on the screen, marked by the fact that the text passages are arranged on the screen concentrically around the combination of the search criteria, with the radial distances of the individual text passages showing their relevance to the combination of the search criteria.
- 2. Programme logic pursuant to Claim 1, characterised by the fact that the individual search criteria on the screen are attributed to sectors, with the individual text passages being displayed on the screen in the sectors of that search criterion for which they are most relevant.
- 3. Programme logic pursuant to one of Claims I and 2, characterised by the fact that the text passages are displayed on the screen in two or three dimensions.
- 4. Programme logic pursuant to one of the Claims 2 or 3, characterised by the fact that a radial beam or a radial level departs from every search criterion shown in the centre, with the text passages relevant to the individual search criteria being shown in the sectors of the radial beams or levels, respectively.
- 5. Programme logic pursuant to Claim 4, characterised by the fact that those text passages which are relevant to two of the search criteria are shown in those sectors which are defined by the beams or levels attributed to such search criteria.
- 6. Programme logic for the purpose of retrieving text passages relevant to the solution of a programme by using one screen and at least one data memory for electronically stored text passages characterised by the fact that a number of criteria relevant to the solution of the task and subcriteria attributed to them of several consecutive categories are shown on the screen and that, subsequently, based on a combination of search criteria a text search in at least one data memory is carried out, the result of which can also be displayed on the screen.

7. Programme logic pursuant to Claim 6, characterised by the fact that also the subcriteria of a second category attributed to the subcriteria of a first category are arranged around these subcriteria of the first category in a radial order.

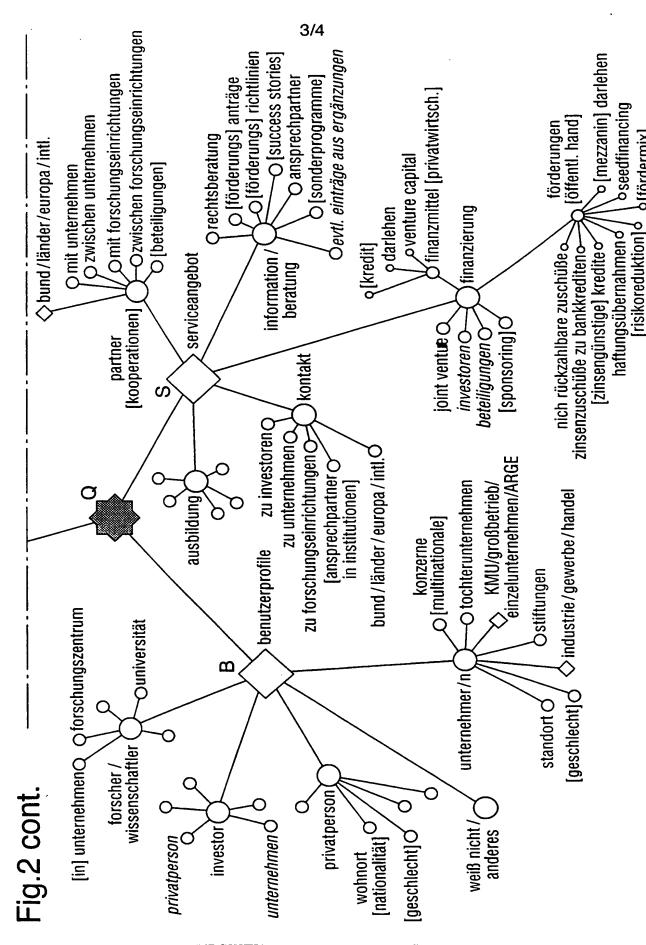
8. Programme logic pursuant to Claim 7, characterised by the fact the subcriteria attributed to one criterion are arranged around the respective superior criterion on the screen in a three-dimensional radial order.

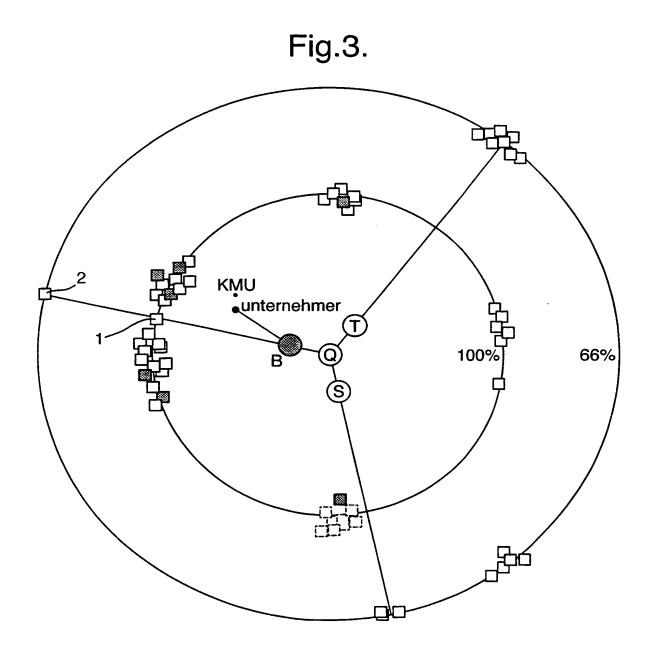






**♭[fördermix**]





A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F17/30					
	International Patent Classification (IPC) or to both national classification	ation and IPC			
	SEARCHED  cumentation searched (classification system followed by classification	on symbols)			
IPC 7	G06F	on symbolsy			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched					
Electronic de	ata base consulted during the international search (name of data ba	se and, where practical, search terms used	)		
C. DOCUME	ENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the rel	levant passages	Relevant to claim No.		
Α	HEMMJE M ET AL: "LYBER WORLD - A VISUALIZATION USER INTERFACE SUPPORTING FULLTEXT RETRIEVAL" SIGIR '94, DUBLIN, JULY 3 - 6, 1994,				
А	no. CONF. 17, 3 July 1994 (1994-07-03), pages 249-259, XP000475325 CROFT W B; VAN RIJSBERGEN C J (EDITORS) page 253, line 6 -page 255, paragraph 4 page 251, line 57 -page 252, line 9 6-8				
		-/			
X Furti	her documents are listed in the continuation of box C.	Patent family members are listed	in annex.		
"T" later document published after the international filing date or priority date and not in conflict with the application but considered to be of particular relevance  "E" earlier document but published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  "Date of the actual completion of the international search  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the or priority date on considered to understand the principle or theory underlying the cited to understand the principle or theory underlying the or priority date on conflict with the application but cited to understand the principle or theory underlying the invention cannot be considered novel or cannot be considered to involve an inventive step when the document is combined with one or more other such document is combined with one or more other such document is combined with one or more other such document is combined with one or more other such document is combined with one or more other such cannot be considered to involve an inventive step when the document is combined with one or more other such cannot be considered to involve an inventive step when the document is combined with one or more other such cannot be considered to involve an inventive step when the document is taken alone inventive step when the document is combined with one or more other such cannot be considered to involve an inventive step when the document is cannot be considered to involve an inventive step when the document is cannot be considered.  "Y" document of particular relevance; the claimed invention canno			the application but early underlying the claimed invention to considered to coument is taken alone claimed invention ventive step when the one other such docupus to a person skilled		
22 October 1999 02/11/1999  Name and mailing address of the ISA Authorized officer					
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		FC1/EF 99/03088
:.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<b>X</b>	GINSBERG A: "A UNIFIED APPROACH TO AUTOMATIC INDEXING AND INFORMATION RETRIEVAL" IEEE EXPERT, vol. 8, no. 5, 1 October 1993 (1993-10-01), pages 46-56, XP000413472 ISSN: 0885-9000	6
4	page 47, right-hand column, line 3 -page 48, left-hand column, line 14	7,8
A	LAMPING J ET AL: "A FOCUS+CONTEXT TECHNIQUE BASED ON HYPERBOLIC GEOMETRY FOR VISUALIZING LARGE HIERARCHIES" HUMAN FACTORS IN COMPUTING SYSTEMS, CHI '95 CONFERENCE PROCEEDINGS. DENVER, MAY 7 - 11, 1995,7 May 1995 (1995-05-07), pages 401-408, XP000538470 KATZ I R ET AL (ED ) ISBN: 0-201-84705-1 abstract; figures	6-8
A	FOWLER R H ET AL: "INTEGRATING QUERY, THESAURUS, AND DOCUMENTS THROUGH A COMMON VISUAL REPRESENTATION" PROCEEDINGS OF THE ANNUAL INTERNATIONAL ACM/SIGIR CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL, CHICAGO, OCT. 13 - 16, 1991, no. CONF. 14, 13 October 1991 (1991-10-13), pages 142-151, XP000239166 BOOKSTEIN A; CHIARAMELLA Y; SALTON G; RAGHAVAN V the whole document	1-8

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## ATENT COOPERATION TREATY

Copy for the Elected Office (EO/US)

•	From the INTERNATIONAL BUREAU			
PCT	То:			
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year) 27 September 2000 (27.09.00)	NICHOLLS, Michael, John J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX ROYAUME-UNI			
Applicant's or agent's file reference	IMPORTANT NOTIFICATION			
N.77422 MN	1			
International application No. PCT/EP99/05088	International filing date (day/month/year) 16 July 1999 (16.07.99)			
The following indications appeared on record concerning:      The applicant the inventor	the agent the common representative			
Name and Address	State of Nationality State of Residence  AT AT			
VIRTUAL REAL-ESTATE Breite Gasse 3/2 A-1070 Wien Austria	Telephone No.			
Austria ,	Facsimile No.			
	Teleprinter No.			
The International Bureau hereby notifies the applicant that the the person				
UMA HOLDING GMBH Breite Gasse 3/2 A-1070 Wien	Telephone No.			
Austria	Facsimile No.			
	Teleprinter No.			
3. Further observations, if necessary:				
4. A copy of this notification has been sent to:				
X the receiving Office	the designated Offices concerned			
the International Searching Authority  the International Preliminary Examining Authority	X the elected Offices concerned other:			
Life international Fremminary Examining Actionty				
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer C. Cupello			

Telephone No.: (41-22) 338.83.38

Facsimile No.: (41-22) 740.14.35

### From the INTERNATIONAL BUREAU

To:

### NOTIFICATION OF THE RECORDING **OF A CHANGE**

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

Date of mailing (day/month/year)

NICHOLLS, Michael, John J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX **ROYAUME-UNI** 

27 September 2000 (27.09.00)						
Applicant's or agent's file reference N.77422 MN	IMPORTANT NOTIFICATION					
International application No.	International filing date (day/month/year)					
PCT/EP99/05088	16 July 1999 (16.07.99)					
FC1/E1 33/03000						
The following indications appeared on record concerning:      The applicant the inventor	the agent the common representative					
Name and Address	State of Nationality State of Residence					
VIRTUAL REAL-ESTATE	AT AT					
Breite Gasse 3/2 A-1070 Wien Austria	Telephone No.					
Austria	Facsimile No.					
	Teleprinter No.					
The International Bureau hereby notifies the applicant that the following change has been recorded concerning:     the person						
Name and Address	State of Nationality State of Residence					
UMA HOLDING GMBH	AT AT					
Breite Gasse 3/2 A-1070 Wien	Telephone No.					
Austria	Facsimile No.					
·	Teleprinter No.					
3. Further observations, if necessary:						
4. A copy of this notification has been sent to:						
X the receiving Office	the designated Offices concerned					
the International Searching Authority	X the elected Offices concerned					
L	other:					
the International Preliminary Examining Authority	Other.					
The International Bureau of WIPO	Authorized officer					

Facsimile No.: (41-22) 740.14.35 Form PCT/IB/306 (March 1994)

34, chemin des Colombettes 1211 Geneva 20, Switzerland

C. Cupello

Telephone No.: (41-22) 338.83.38

# Copy for the Elected Office (EO/US) ATENT COOPERATION TROPY

	From the INTERNATIONAL BUREAU				
PCT	To:	То:			
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)	NICHOLLS, Michael, John J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX ROYAUME-UNI				
Date of mailing (day/month/year) 22 March 2000 (22.03.00)					
Applicant's or agent's file reference N.77422 MN		IMPORTANT I	NOTIFI	CATION	
International application No. PCT/EP99/05088	l.	nal filing date (day/mo uly 1999 (16.07.99	•	r)	
The following indications appeared on record concerning:      X the applicant      X the inventor	the agen	t the co	ommon	representative	
Name and Address		State of Nationality AT		State of Residence AT	
DÖGL, Daniel Geusaugasse 33/14 A-1030 Wien Austria		Telephone No.			
	Facsimile No.				
		Teleprinter No.	- "		
2. The International Bureau hereby notifies the applicant that t	he following	change has been reco	rded co	ncerning:	
the person the name X the add	lress [	the nationality		the residence	
Name and Address		State of Nationality	T	State of Residence	
DÖGL, Daniel		AT		AT	
Kirchengasse 34/2/2 A-1070 Wien Austria		Telephone No.			
Austria		Facsimile No.			
		Teleprinter No.		<del></del>	
3. Further observations, if necessary:				<del></del>	
2. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.					
4. A copy of this notification has been sent to:					
X the receiving Office	[	the designated Of	ffices co	ncerned	
the International Searching Authority	[	X the elected Office	s conce	rned	
X the International Preliminary Examining Authority		other:	_		
The International Bureau of WIPO	Authorized	officer	-		
34, chemin des Colombettes		Beate Gi	iffo-Sc	hmiౖtt	
1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38				



### From the INTERNATIONAL BUREAU

### **PCT**

### **NOTIFICATION OF ELECTION**

(PCT Rule 61.2)

DÖGL, Christian et al

Assistant Commissioner for Patents United States Patent and Trademark Office

**Box PCT** 

Washington, D.C.20231 ETATS-UNIS D'AMERIQUE

elected Office
<del></del>
_

1. The designated Office is hereby notified of its election made:				
	X in the demand filed with the International Preliminary Examining Authority on:			
	08 February 2000 (08.02.00)			
	in a notice effecting later election filed with the International Bureau on:			
2.	The election X was			
	was not			
	made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).			

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Authorized officer

**Beate Giffo-Schmitt** 

Telephone No.: (41-22) 338.83.38

Facsimile No.: (41-22) 740.14.35

		From the INTERNATIONAL BUREAU			
PCT	То:				
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year) 22 March 2000 (22.03.00)	NICHOLLS, Michael, John J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX ROYAUME-UNI				
Applicant's or agent's file reference		IMPORTANT NOTIFICATION			
N.77422 MN		INFORTAN	II NOIII	-ICATION	
International application No. PCT/EP99/05088	i .	nal filing date (day uly 1999 (16.07		ar)	
The following indications appeared on record concerning:      X the applicant      X the inventor	the ager	t t	ne commo	n representative	
Name and Address		State of National	ity	State of Residence	
CAVALLAR, Claudia Gobergasse 54 A-1130 Wien Austria		Telephone No.			
		Facsimile No.			
		Teleprinter No.		and the second s	
2. The International Bureau hereby notifies the applicant that the the person the name X the add	Г	change has been in the nationality		oncerning: the residence	
Name and Address		State of National	lity	State of Residence	
CAVALLAR, Claudia Rienösslgasse 22/14 A-1040 Wien		Telephone No.	<u>.</u>	AT	
Austria		Facsimile No.			
,		Teleprinter No.			
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:				<del> </del>	
X the receiving Office	[	the designate	d Offices o	concerned	
the International Searching Authority	[	the elected Of	ffices cond	erned	
X the International Preliminary Examining Authority	L	other:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Beate Giffo-Schmitt			chmitt	
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38				

### From the INTERNATIONAL BUREAU PCT NOTIFICATION OF THE RECORDING NICHOLLS, Michael, John **OF A CHANGE** J.A. Kemp & Co. 14 South Square (PCT Rule 92bis.1 and Grav's Inn Administrative Instructions, Section 422) London WC1R 5LX **ROYAUME-UNI** Date of mailing (day/month/year) 22 March 2000 (22.03.00) Applicant's or agent's file reference IMPORTANT NOTIFICATION N.77422 MN International filing date (day/month/year) International application No. 16 July 1999 (16.07.99) PCT/EP99/05088 1. The following indications appeared on record concerning: the common representative X the inventor the agent X the applicant State of Nationality State of Residence Name and Address AT IT CAVALLAR, Claudia Gobergasse 54 A-1130 Wien Telephone No. Austria Facsimile No. Teleprinter No. 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: the residence the address the nationality the name the person State of Nationality State of Residence Name and Address AT IT CAVALLAR, Claudia Rienössigasse 22/14 A-1040 Wien Telephone No. Austria Facsimile No. Teleprinter No. 3. Further observations, if necessary: 4. A copy of this notification has been sent to: the designated Offices concerned X the receiving Office the elected Offices concerned the International Searching Authority the International Preliminary Examining Authority other: Authorized officer The International Bureau of WIPO Beate Giffo-Schmitt 34, chemin des Colombettes 1211 Geneva 20, Switzerland Telephone No.: (41-22) 338.83.38 Facsimile No.: (41-22) 740.14.35

	From the INTERNATIONAL BUREAU				
PCT	То:				
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year) 22 March 2000 (22.03.00)	NICHOLLS, Michael, John J.A. Kemp & Co. 14 South Square Gray's Inn London WC1R 5LX ROYAUME-UNI				
Applicant's or agent's file reference	WARRANT NOTIFICATION				
N.77422 MN	IMPORTANT NOTIFICATION				
International application No. PCT/EP99/05088	International filing date (day/month/year) 16 July 1999 (16.07.99)				
The following indications appeared on record concerning:      X the applicant      X the inventor	the agent the common representative				
Name and Address	State of Nationality State of Residence AT AT				
DÖGL, Daniel Geusaugasse 33/14	Telephone No.				
A-1030 Wien Austria					
	Facsimile No.				
	Teleprinter No.				
2. The International Bureau hereby notifies the applicant that the	the following change has been recorded concerning:				
the person the name X the add					
Name and Address	State of Nationality State of Residence  AT AT				
DÖGL, Daniel Kirchengasse 34/2/2	Telephone No.				
A-1070 Wien Austria					
	Facsimile No.				
	Teleprinter No.				
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:					
X the receiving Office	the designated Offices concerned				
the International Searching Authority	the elected Offices concerned				
X the International Preliminary Examining Authority	other:				
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Beate Giffo-Schmitt				
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38				